31st July 1965]

APPENDIX I.

[*Vide* Answer to Starred Question No. 12 on page 56.]

(*a*) (*b*) The Geological Survey of India have investigated for the occurrences of copper in the following districts in this State.

(1) South Arcot ;

(2) Coimbatore ; and

(3) Kanyakumari.

The State Geology Branch of this Government has also investigated for copper in the above districts and also in Tirunelveli district. The details of these investigations are furnished below :—

South Arcot district.—The Geological Survey of India investigated the occurrences of copper in Kallakurichi taluk. Copper-lead-zinc mineralisation occurs about 2·5 kms. south-west of the village, Mamandur, Kallakurichi taluk, South Arcot district, localised along the contact zone between garnetiferous quartzo-feldspathic gneiss and granite gneiss. The mineralisation is in the form of veins, stringers and segregations in hornblende-granulite, amphibolite and meta-anorthosite. The lodes strike in a general N. 35° E. direction dipping at above 60–65° the south-east. The drilling in the area has served to trace mineralisation over a length of about 760 metres. Of this, only 457 metres (1,500 feet) was taken to have regular mineralised portion varying in width from 0·6 to a maximum of 10·77 m. The grade of the ores as brought out by the assay data of the core-samples shows a range of 0·24 per cent to 1·17 per cent copper, 0·11 per cent to 8·94 per cent lead and 6·74 per cent to 9·36 per cent zinc. Taking an average width of 3·6 m (12 feet) for the thickness of mineralisation and assuming that it is continuous in the area covered by drill holes 4 to 8, i.e., a length of 457 metres (1,500 feet), the probable reserves of ore to a depth of 214 m. (700 feet) in the direction of dip of the lodes is computed to be of the order of 900,000 tons (after allowing 25 per cent for various losses) of an average grade of 0·63 per cent copper, 2 per cent lead and 2·73 per cent zinc.

2. The indications of mineralisation in the nearby Kanankadumalai and its north-eastern extensions (i.e. the parallel zone of mineralisation) were pointed out and the Geochemical soil anomalies for zinc and copper as brought out by the Geochemical soil survey discussed. In spite of the limited reserves brought out by the present work, the occurrence of lead-zinc rich mineralisation in the area together with the favourable Geochemical soil anomalies and other indications for zinc and copper deserve further exploration to ascertain the reserves of base-metal ores that could be expected in the area. The Geological Survey of India is not continuing further work in this area. However, it

has been taken up by the Indian Bureau of Mines for making a preliminary assessment report of the area, with a view to undertake detailed exploration in due course.

3. The Geology Branch of the Madras Industries Department has been engaged in investigating possible occurrences of copper or other metals in the surrounding areas especially to the west and north of Mamandur. They are able to locate indication of parallel zones of mineralisation near Vadaponparappi. Some indications of copper have also been noticed near Bairanayakanpatti at the northern portion of the Kalrayan Hills. Further work in the Kalrayan Hills by the State Geology Branch is under progress.

Coimbatore district.—The State Geology Branch investigated the area around Bhavanisagar for possible occurrences of copper. However, no indication of copper occurrence was found.

The Geological Survey of India have taken up recently some investigations for copper in this district. The work is under progress.

Tirunelveli district.—The State Geology Branch found some indications of copper at Mundradaippu about 12 miles south of Tirunelveli along the road to Nanguneri and at Pattankadu about 4 miles south of Sermadevi on the road to Kalakkadu. The zone of mineralisation seems to be localised and small in both places. These areas have been referred to the Geological Survey of India for further work.

Kanyakumari district.—The sulphide occurrences near Arumanallur in the Thovala taluk contain small quantities of copper also. The analysis carried out by the State Geology Branch and the Geological Survey of India indicate 0·52 to 1·33 per cent of copper. Here also, the lode could be traced for a limited length of about 450 feet. The Geological Survey of India is currently carrying out detailed mapping of this deposit. Drilling would be taken up in this area either by the Geological Survey of India or by the State Geology Branch to prove the depth of persistence of the lode. Further work in this area is necessary before any opinion can be given about the economic importance of the deposit.